

Contribution of the lipopolysaccharide to resistance of *Shigella flexneri* 2a to extreme acidity

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Shigella flexneri is endemic in most underdeveloped countries, causing diarrheal disease and dysentery among young children. In order to reach its target site, the colon, *Shigella* must overcome the acid environment of the stomach. *Shigella* is able to persist in this stressful environment and, because of this ability it can initiate infection following the ingestion of very small inocula. Thus, acid resistance is considered an important virulence trait of this bacterium. It has been reported that moderate acid conditions regulate the expression of numerous components of the bacterial envelope. Because the lipopolysaccharide (LPS) is the major component of the bacterial surface, here we have addressed the role of LPS in acid resistance of *S. flexneri* 2a. Defined deletion mutants in genes encoding proteins involved in the synthesis, assembly and length regulation of the LPS O antigen were constructed and assayed for resistance to pH 2.5 after adaptation to pH 5.5. The results showed that